

## INTRODUCING THE SCIENCE OF BIODIVERSITY CONSERVATION TO UKRAINIAN UNIVERSITIES

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Humans depend on the services and goods provided by the Earth's ecosystems. Everything we obtain from nature — food, water, building materials, spiritual renewal, — together represents the goods and services of nature. According to Millennium Ecosystem Assessment findings [1] humans have changed ecosystems more rapidly and extensively over the past 50 years than at during any comparable period of time in human history. Moreover, approximately 60% of ecosystem services considered by the Millennium Ecosystem Assessment were degraded or being used unsustainably [1], including 70% of regulating and cultural services.

The key components of ecosystem services are genes, species and ecosystems [2]. Forty years ago biodiversity conservation was perceived around the world as simply the conservation of endangered species.

However, "biodiversity" is much broader than just species, endangered or not. As defined by Convention on Biological Diversity [3] biodiversity is "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems." A more succinct definition is provided by Harrison et al. [4] as "the variety of life on Earth at all its levels, from genes to ecosystems, and the ecological and evolutionary processes that sustain it."

Conservation of biodiversity is an aim of the applied and nascent science of conservation biology, which combines theoretical knowledge in biology and ecology with practice and policy. As a science conservation biology began in 1978 at the First Conference in San Diego at University of California. Conservation biology differs from other disciplines in several ways. First, it is a crisis science insofar as it requires immediate actions even in case of potential threat to prevent negative consequences of loss of biodiversity in the future [5]. Second, it is an interdisciplinary science as that integrates sociology, economics, policy, communications and other fields to inform decision-making to enable biodiversity conservation. Third, it is an applied science that develops methods, approaches, and tools for protection of life on the Earth in all its forms [6].

Ukraine is biodiverse country. However, the future of the region's biodiversity is uncertain. For many years conservation initiatives have relied on local enthusiasts or biologists who were not trained as conservation biologists. Moreover, conservation biology has not been perceived as a respectable topic worthy of attention by scientists nor one that would benefit from a scientific approach. For these reasons and the related lack of expertise and financial

resources, biodiversity conservation has not been included into the system of higher education in Ukraine. Consequently there is a lack of trained experts in conservation science in the country today. Therefore among many other challenges that the country now faces, Ukraine urgently requires trained biodiversity conservation professionals to implement goals that have been defined by *National Strategy for Environmental Policy in Ukraine* to 2020 and *National Action Plan for Environmental Protection in Ukraine* for 2011-2015. As opportunities and resources for academic and professional training in conservation are limited in availability and scope in Ukraine, it is crucial at this time to introduce to institutions of higher learning to the science of conservation biology.

According to the personal discussion with the representative at the Ministry of Education and Science, Youth and Sport of Ukraine as of nineteenth of March 2012 there are no separate biodiversity conservation course in Ukraine as for today. It is included as a rule as a separate module to the "Ecology" course. The new Master program "Protected Area Management" has been developed but has not been yet introduced to any University in Ukraine.

One first attempt to introduce science of biodiversity conservation into the Ukrainian higher education system involved an "Ecology" course for 1<sup>st</sup> year Master Degree students at National University of Kyiv-Mohyla Academy. Modules that included lectures, seminars, case studies and lectures were developed based on the experience of teaching conservation biology in Great Britain and the United States using materials developed by Network of Conservation Education Practitioners (<http://ncep.amnh.org/>). The course is a significant supplement to the curriculum of the program of Ecology, Environmental Protection and Sustainable Management.

### **References:**

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